AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph starting on page 4, line 23 with the following paragraph rewritten in amendment format:

The invention is implemented with the following scheme. An optical receiver module with digital adjustment includes an optical-electrical converter circuit~~, a voltage output circuit of optical power detection,~~ and a bias voltage adjusting circuit that comprises a DC/DC voltage boost circuit; ~~it is further included that,~~wherein the optical receiver module is standardized before applied;

a voltage output circuit of optical power detection detecting and sending an analog voltage of an optical power;

a digital adjusting unit digitally adjusting the DC/DC voltage boost circuit to output different voltage;

an A/D converter converting both an analog voltage of a measured working temperature of an optical detector into a digital data and ~~an~~ the analog voltage of ~~a measured~~the optical power into a digital data, which are used for controlling the digital adjustment circuit, monitoring a bias voltage of an optical detector, making temperature compensation and dark current compensation at different temperature;

a memory storing parameters of the optical receiver module as a basis for adjustment.

Please replace the paragraph starting on page 5, line 7 with the following paragraph rewritten in amendment format:

An adjusting method for an optical receiver module with digital adjustment~~,~~ ~~comprising,~~ includes:

~~A. setting a memory,~~ storing ~~digital values for~~ digital-analog ~~conversion~~ (DA) values of a D/A converter of the optical receiver module during dark current zero-adjustment and optical detector bias voltage adjustment in ~~the~~ a memory, wherein the storing is performed before the optical receiver module is applied and under the condition that no optical is inputted;

storing digital values (AD) converted through an A/D converter during standardizing optical power detection and temperature measurement before the optical receiver module is applied, wherein the AD value corresponds to optical power;

~~B.~~ reading out the ~~digital values (~~DA value~~)~~ during dark current zero-adjustment and optical detector bias voltage adjustment from the memory and loading to a digital adjusting unit;

~~C.~~ comparing the optical power AD value stored in the memory during standardizing optical power detection with a detected optical power AD value converted by the A/D converter and sending a result to a CPU for linear interpolation;

~~D.~~ comparing the temperature AD value stored in the memory during temperature measurement with a measured temperature AD value converted by the A/D converter, and sending a result to the CPU;

~~E.~~ the CPU detecting whether dark current compensation at current temperature satisfies preset temperature compensation requirement, if it is, keeping the DA value,

otherwise changing the DA value ~~in step B~~ read out to adjust further dark current compensation;

~~F.~~ the CPU detecting whether the bias voltage of the optical detector at current temperature satisfies preset temperature compensation requirement, if it is, keeping said DA value, otherwise changing the DA value ~~in step B~~ read out to adjust further voltage of the optical detector.

Please replace the paragraph starting on page 5, line 31 with the following paragraph rewritten in amendment format:

~~In step A storing~~Storing DA values during dark current zero-adjustment comprises:

~~A1.~~ setting a DA value;

~~A2.~~ converting an analog output Optical Power Measurement (OPM) of an operation amplifier for optical power detection into a digital data by the A/D converter, and then sending to the CPU;

~~A3.~~ the CPU detecting whether ~~or not~~ the digital data ~~satisfying~~ satisfies dark current zero-adjustment requirement; if it is, storing the set DA value in the memory, otherwise returning to ~~step A1~~setting a DA value.

Please replace the paragraph starting on page 6, line 7 with the following paragraph rewritten in amendment format:

~~In step A storing~~Storing DA values during optical detector bias voltage adjustment comprises:

~~A4.~~ setting a DA value;

~~A5.~~ converting an optical detector bias voltage by the A/D converter into a digital data, and then sending to the CPU;

~~A6.~~ the CPU detecting whether or not the digital data satisfies the optical detector bias voltage requirement; if it is, storing the set DA value in the memory, otherwise, returning to ~~step A4~~setting a DA value.

Please replace the paragraph starting on page 6, line 15 with the following paragraph rewritten in amendment format:

~~In step A storing~~Storing AD values during standardizing optical power detection comprises:

~~A7.~~ inputting a standard light source;

~~A8.~~ determining ~~a~~ corresponding AD values with 0.5 ~~dBm~~ dB optical power space within optical power detection scope, and storing the determined AD values in the memory.

Please replace the paragraph starting on page 6, line 21 with the following paragraph rewritten in amendment format:

~~In step A storing~~Storing AD values during standardizing temperature measurement comprises:

~~A9.~~ calculating corresponding relationship between a temperature and the AD value;

~~A10.~~ determining ~~a~~ corresponding AD values with 5°C_space within a certain temperature scope, storing the determined AD values in the memory.

Please replace the paragraph starting on page 6, line 27 with the following paragraph rewritten in amendment format:

The method further comprises ~~in the memory~~ storing, in the memory, parameters of an optical receiver module including type of the optical receiver module, production date, receiving sensitivity, overload point and maximum bias voltage of the optical detector during test.

Please replace the paragraph starting on page 7, line 1 with the following paragraph rewritten in amendment format:

The method further comprises ~~further comprises~~, reading out a digital data of bias voltage of the optical detector converted by an A/D converter through the CPU, and then real-timely displaying.

Please add the following paragraphs on page 7, between lines 3 and 4.

An apparatus for optical power detection in an optical receiver module, which is standardized before applied, includes:

a voltage output circuit of optical power detection sampling a bias current, converting the bias current to a voltage for indicating optical power, and sending the voltage which is analog;

an A/D converter receiving the analog voltage, converting the analog voltage into digital data of the analog voltage, and comparing the digital data of the analog voltage with an AD value stored in a memory, and sending a result to a CPU for obtaining the optical power; and

the memory storing an AD value of an analog voltage, and optical power corresponding to the AD value when the optical power of the apparatus is standardized.

A method for optical power detection in an optical receiver module includes:

sampling, by a voltage output circuit of optical power detection, a bias current, converting the bias current to a voltage for indicating an optical power, and sending the voltage which is analog; wherein the optical power of the optical power detection module is standardized before applied;

receiving, by an A/D converter, the analog voltage, converting the analog voltage into digital data of the analog voltage, and comparing the digital data of the analog voltage with an AD value stored in a memory, and sending a result to a CPU for obtaining the optical power; and

storing, by the memory, an AD value of an analog voltage, and optical power corresponding to the AD value when the optical power of the optical power detection module is standardized.

Please replace the paragraph starting on page 7, line 19 with the following paragraph rewritten in amendment format:

To implement the invention, software is needed, so the system has a software overhead comparing with an optical receiver module having analog adjustment, but it has the following advantages.

(1) Better stability and reliability. Since a digital adjusting unit (a digital potentiometer or a D/A converter) does not have mechanical contacts, it is more reliable, stable and with longer life.

(2) Easier to test and lower production cost. Since a digital adjusting unit is adjusted by software, it is easier to test and adjust the bias voltage of an optical detector.

(3) Easier to trace products. Since parameters of an optical receiver module are stored in a memory, a product data is easier to store in a database and to trace.

(4) An optical receiver module is monitored on-line, so the maintenance cost is reduced.

(5) It is more effective that the dark current compensation and temperature compensation of an optical receiver module, its receiving sensitivity and detecting accuracy are raised.

Please replace the paragraph starting on page 10, line 28 with the following paragraph rewritten in amendment format:

Figure 8 shows a diagram implementing optical power detection in digital and online mode. In this diagram, an ADC converts a detected analog value into a digital data, and the detected analog values include the bias voltage V_APD, the output voltage OPM of the detected optical power and the output voltage of the measured temperature. The output of the ADC is a serial data. In this manner, test efficiency of the module is improved because monitor can be ~~implement~~ implemented without using a multimeter.

Please replace the paragraph starting on page 11, line 10 with the following paragraph rewritten in amendment format:

In order to increase detection accuracy, an optical power is detected in a standardization way that stores ADC output data of a standard optical power every ~~0.5dbBm~~0.5dB within the detection scope in the memory.

Please replace the paragraph starting on page 12, line 4 with the following paragraph rewritten in amendment format:

During optical power detection, the V_APD value is calculated by the following formula:

$$Data = \frac{V_{in}}{V_{REF}} \times 2^{N};$$

Wherein V_{REF} = 5V, N = 12, Data = 23H and V_APD = 15 V_{in} in case of V_APD the voltage sampled one-fifteenth V_{in}.

Please replace the paragraph starting on page 12, line 9 with the following paragraph rewritten in amendment format:

At different temperature, an optical detector must make temperature compensation through the bias voltage so that higher receiving sensitivity can be ~~obtain~~obtained.

Please replace the paragraph starting on page 14, line 24 with the following paragraph rewritten in amendment format:

Second part standardizes the detected optical power and includes the following steps:

Step 906, input a standard light source, determine ADC output data every ~~0.5dBm~~0.5dB within the detected scope;

Step 907, store every determined optical power data in the memory.

Please replace the paragraph starting on page 16, line 22 with the following paragraph rewritten in amendment format:

Adjustment and monitor online can be ~~implement~~ implemented with the optical receiver module of the invention in terms of digital adjustment, which brings out excellent performance for the optical receiver module with the scheme.